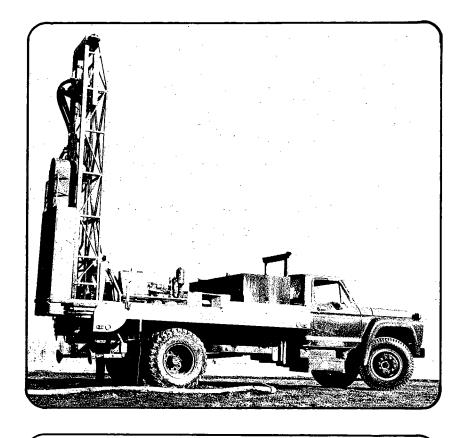
### MINERALS REPORT 20

# THE MINERAL INDUSTRY OF SOUTH DAKOTA IN 1973

by J. M. West

February, 1976



DEPARTMENT OF NATURAL RESOURCE DEVELOPMENT SOUTH DAKOTA GEOLOGICAL SURVEY VERMILLION, SOUTH DAKOTA 57069

## The Mineral Industry of South Dakota

This chapter has been prepared under a cooperative agreement between the Bureau of Mines, U.S. Department of the Interior, and the South Dakota State Geological Survey for collecting information on all minerals except fuels.

### By J. M. West 1

South Dakota's record production of minerals in 1973 was valued at \$81.1 million, an increase of 24% over the previous record value in 1972. Gold contributed the greatest share of the increase and comprised 43% of the total value. An approximate 23% increase in the value of cement production was also important. Metals accounted for 43.3% and nonmetals for 55.5% of the total mineral output value in 1973. Petroleum accounted for only 1.2% of the total.

The State was back in first place among U.S. gold-producing States after falling to second behind Nevada in 1972. The Homestake gold mine produced 357,575 ounces of gold valued at \$34.97 million. Legislation was considered to reimpose the State ore tax that was repealed in 1970 and that primarily affected the Homestake Mining Co. However, the Legislature's Interim Tax Committee, after hearing testimony in September, recommended that no action be taken by the next legislature to reinstate the tax.

The Lead-Deadwood Sanitary District Board requested an extension of the completion date for a sanitary sewer project in the Centennial Valley, where Homestake wastes and tailings were to go for disposal. The original schedule called for State and Environmental Protection Agency approval by December 1, 1973, the let-

ting of bids by December 1, 1974, and project completion by November 1, 1975. Opponents of the project contended that cyanide and other toxic materials in the tailings would leak into ground water aquifers and make the water unfit for human use. Meanwhile, the Sanitary District and the Homestake Mining Co. attempted to establish an impermeable foundation for the project's dam after discovering gypsum on the floor of the area.

The State legislature passed an amendment to the Surface Mining Land Reclamation Act of 1971 releasing the pegmatite miner, who mines less than 1,000 tons of material per year, from payments for permits and bonds. It still remained necessary to obtain a permit and file a reclamation plan. Only if the production from one property exceeded 1,000 tons per year, however, did the miner have to post bonds for reclamation.

On August 7 the Earth Resources Observations Systems (EROS) Data Center was dedicated northeast of Sioux Falls. The facility was established to collect and process data on a wide variety of earth features including detectable mineral resources.

<sup>&</sup>lt;sup>1</sup> Physical scientist, Division of Nonferrous Metals—Mineral Supply.

Table 1.—Mineral production in South Dakota 1

	197	2	197	3
Mineral	Quantity	Value (thousands)	Quantity	Value (thousands)
Beryllium concentrates short tons	w	w		
Clays 2 thousand short tons	185	\$156	201	\$181
Feldspar short tons	r 25.000	r 400	w	w
Gem stones	ΝA	42	NÄ	42
Gold (recoverable content of ores, etc.)				
troy ounces	407.430	23,875	357,575	34,974
Gypsum thousand short tons	24	43	W	W
Lime do	w	w	63	1.206
Mica (scrap) do		w		1,200
Petroleum (crude) thousand 42-gallon barrels	219	574	275	988
Sand and gravel thousand short tons	12,748	14,793	13.963	16,587
Silver (recoverable content of ores, etc.)	,. 20	,	10,000	10,001
thousand troy ounces	100	168	72	184
Stone thousand short tons	2,665	10.864	2,745	11.607
Value of items that cannot be disclosed:	<b>=</b> ,000	20,002	2,140	11,001
Cement, clays (bentonite), uranium (1972),				
vanadium (1972), and values indicated by				
symbol W	XX	14.535	XX	15,370
		14,000		. 10,010
Total	XX	r 65.450	·xx	81,139
Total 1967 constant dollars	XX	54,003	XX	p 59,572

<sup>&</sup>lt;sup>p</sup> Preliminary. <sup>r</sup> Revised. NA Not available. W Withheld to avoid d vidual company confidential data; included with "Value of items that cannot be disclosed." W Withheld to avoid disclosing indi-that cannot be disclosed." XX Not

by producers).

<sup>2</sup> Excludes bentonite; included with "Value of items that cannot be disclosed."

Table 2.—Value of mineral production in South Dakota, by county 1

r)	Chousands)	· · · · · · · · · · · · · · · · · · ·
1972	1973	Minerals produced in 1973 in order of value
\$39	\$42	Sand and gravel.
106		Do.
29		Do.
w		Sand and gravel, stone.
w		Sand and gravel.
ŵ		Do.
w		Do.
w	ÿ	Clays, sand and gravel.
w	151	Sand and gravel.
9		Do.
w	14	Do.
14	17	Do.
w		Do.
ŵ		Do.
г 395	w	Feldspar, petroleum.
w	19	Sand and gravel.
ŵ		Do.
13		Do.
		Do.
115	143	Do.
	w	Do.
w	w	Sand and gravel, stone.
		Sand and gravel,
		Stone, sand and gravel.
ŵ	.,.w	Sand and gravel.
w		Danie and Braten
	41	Sand and gravel.
		Do.
		Stone, sand and gravel.
		Petroleum, sand and gravel.
		Sand and gravel.
		Do.
ẅ	w	Do.
	•••	Do.
		Do.
		Do.
		Gold, silver, sand and gravel, stone.
		Sand and gravel,
	**	Danu anu graver,
	₩	Sand and gravel.
W	W	Do.
	\$399 106 29 W W W W W W W W W W W W W W W W W W	\$39 \$42 106 W 29 45 W 420 W 420 W 28 W W 151 9 69 W 14 17 W 16 13 30 W 45 115 143 W W 23 W 45 115 143 W W 10 13 30 W 17 W 16 13 30 W 17 W 16 13 30 W 17 W 16 13 30 W 17 W 17 W 16 W 17 W 17 W 17 W 16 W 23 W 17 W 24,566 35,300 W 24,566 35,300 W W W W W W W W W W W W W W W W W W W

Table 2.—Value of mineral production in South Dakota, by county 1—Continued (Thousands)

	(-	aroundarius,	
County	1972	1973	Minerals produced in 1973 in order of value
Marshall	w	\$156	Sand and gravel.
Meade	w	W	Sand and gravel, gypsum.
Miner		26	Sand and gravel.
Minnehaha	w	$\mathbf{w}$	Stone, sand and gravel.
Moody	w	$\mathbf{w}$	Sand and gravel.
Pennington	r \$14,872	17,026	Cement, stone, lime, sand and gravel, clays, feldspar.
Perkins	87	102	Sand and gravel.
Potter	36	60	Do.
Roberts	w	w	Do.
Sanborn	41	77	Do.
Shannon	w	11	Do.
Spink	27	132	Do.
Sully	w	31	Do.
Tripp	39	83	Stone, sand and gravel.
Turner	w	138	Sand and gravel.
Union	21	63	Do.
Walworth		. 4	Do.
Washabaugh	w	w	Do.
Yankton	179	237	Do.
Ziebach	w	25	Do.
Undistributed 2	r 24,509	17,723	
Total 3	r 65,450	81,139	

r Revised. W Withheld to avoid disclosing individual company connection.

"Undistributed."

¹ The following counties are not listed because no production was reported: Bennett, Jackson, Jones, Mellette, Stanley, and Todd.

² Includes gem stones, some sand and gravel that cannot be assigned to specific counties and values indicated by symbol W.

³ Data may not add to totals shown because of independent rounding.

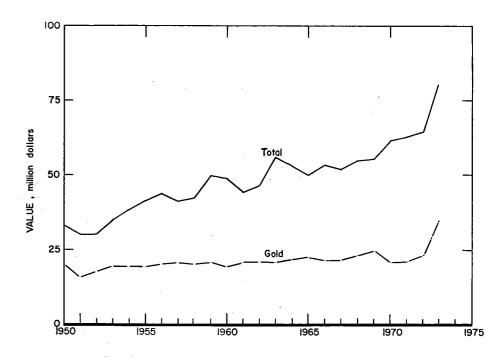


Figure 1.—Value of mine production of gold, and total value of mineral production in South Dakota.

applicable.

1 Production as measured by mine shipments, sales, or marketable production (including consumption

Table 3.—Indicators of South Dakota business activity

· · · · · · · · · · · · · · · · · · ·	1972	1973 P	Change, percent
Employment and labor force, annual average:			
Total labor force thousands	287.6	297.9	+3.6
Employment do do	276.9	288.0	+4.0
Unemployment do do	10.7	9.9	- 7.5
Nonagricultural employment:			
Mining do	2.2	2.4	+9.1
Construction do do	9.0	10.4	+15.6
Manufacturing do do	18.5	19.7	+6.5
Government do do	59.3	59.1	3
Other nonagricultural employment do	106.5	113.6	+6.7
Personal income:			
Total millions	\$2.512	\$2,943	+17.2
Per capita	\$3,699	\$4,296	$+17.2 \\ +16.1$
	40,000	<b>4-,-</b>	
Construction activity:	° \$47.5	\$46.3	-2.5
Highway construction contracts awarded thousands	441.0	φ40.0	- 2.0
Cement shipments to and within South Dakota	326	335	+2.8
thousand short tons	3.728	3,687	-1.1
Number of authorized residential units		\$35.8	$^{-1.1}_{+2.3}$
Value of nonresidential construction millions	\$35.0		+24.0
Mineral production value thousands	\$65,450	\$81,139	+ 24.0

e Estimate. P Preliminary.

Source: Survey of Current Business; Employment and Earnings; Construction Review; Area Trends in Employment and Unemployment; Roads and Streets; and U.S. Bureau of Mines.

In late September, the Governor formed the State Energy Policy Council to advise him on energy supply and distribution. Other functions of the Council were to recommend to Government officials and publicize methods of averting fuel crises. The experimental coal gasification plant at Rapid City continued under test and was able to produce a satisfactory crude gas product after several trials. Steps were planned to upgrade the product into pipeline gas by extracting sulfur and carbon dioxide.

#### **REVIEW BY MINERAL COMMODITIES**

#### **NONMETALS**

Cement.—South Dakota's State-owned cement plant produced 3,109,333 barrels (about 584,000 short tons) of cement in 1973, an increase of nearly 17% from output in 1972.2 Because of expanding markets in the region served by the plant, a \$20 million expansion was planned to raise capacity to 6 million barrels (1.13 million tons) by June 1976. New storage terminals were planned at Fargo, N.D., and Denver, Colo., to service the expected larger marketing area. Also, a plan was to be implemented to replace natural gas with low-sulfur Wyoming coal for fuel. Conversion was expected to cost \$1.5 million.

Clays.—Bentonite production accounted for about half the quantity and the bulk of the value of clays produced in South Dakota in 1973. Part of the bentonite was shipped east for use in taconite pelletizing.

Other types of clay were used for cement, lightweight aggregate, and brickmaking. The only bentonite processing plant was that of the American Colloid Co. Bricks were manufactured at Belle Fourche and shipped to a number of States.

Feldspar.—Production of feldspar was higher than that in 1972. Most of the product was ground by Pacer Corp., owner of a mill at Custer. Shipments of the milled material went to many States.

Gypsum.—The South Dakota Cement Commission operated a small surface mine in Meade County and produced gypsum for use in cement manufacture.

Lime.—Pete Lien & Sons produced lime in Pennington County for use in soil stabilization, water purification, sewage treatment, and various chemical applications. The lime was used in South Dakota, Colorado, and other States. Output rose 11% for a new record. Consumption in South Dakota totaled 34,950 short tons.

Sand and Gravel.—About 57 counties produced sand and gravel. Total produc-

tion was 14.0 million tons, 55% of which was produced for Government agencies. A total of 173 mines operated in 1973 compared with 167 in 1972. Output consisted of 12% sand and 88% gravel.

Table 4.—South Dakota: Sand and gravel sold or used by producers, by county
(Thousand short tons and thousand dollars)

		1972			1973	
Couunty	Number of mines	Quantity	Value	Number of mines	Quantity	Value
Aurora	1	60	39	1	64	42
Beadle	3	w	106	3	w	w
Bon Homme	1	w	29	1	68	45
Brookings	8	521	571	9	268	324
BrownBrule	$\frac{3}{1}$	139 <b>W</b>	W W	9 1	532 37	420 28
Butte	$\frac{1}{2}$	w	w	. 4	31	29
Campbell	3	w	w	3	104	151
Charles Mix	3	w	9	5	159	69
Clark	1	w	w	1	20	14
Clay	2	w	14	2	$\mathbf{w}$	17
Codington	7	485	$\mathbf{w}$	6	$\mathbf{w}$	W
Corson	4	$\mathbf{w}$	w	1	52	16
Davison	2	w	w	3	34	19
Deuel	1	27	13	1	51	30
Dewey Douglas	$\frac{2}{3}$	<b>W</b> 100	W 115	$\frac{1}{3}$	45 172	45 143
	4			2		
Fall River Faulk	4 1	254 23	220 23	2 1	<b>W</b> 45	W 45
	_				==	
Grant	2	W	w	2	145	134
Hamlin	3	91	70	3	W	41
Hand Hanson	5 1	136 <b>W</b>	74 <b>W</b>	5 1	<b>W</b> 191	W 197
Harding	2	w	w	i	68	. 50
Hughes	$\bar{2}$	ŵ	ŵ	î	107	17
Hutchinson	3	w	w	7	157	151
Jerauld	1	52	38	1	60	13
Kingsbury	3	w	16	2	38	11
Lawrence	6	486	496	4	84	118
Lincoln	š	75	55	Ž	w	w
Lyman	2	105	78			
Marshall	5	w	w	5	158	156
Miner				1	54	26
Minnehaha	14	912	912	10	907	899
Moody	4	153	W	4	124	w
Pennington	8	823	1,114	6	879	1,064
Perkins	5	104	87	4	78	102
Potter	1	W	36	1	60	60
SanbornShannon	1	w w	41	3	132	77
Spink	1	73	<b>W</b> 27	$\frac{1}{3}$	29 168	11 132
Sully	3	w	ŵ	ĭ	35	31
Tripp	-	**	**	1	39	39
Turner	2	$\bar{\mathbf{w}}$	$\bar{\mathbf{w}}$	3	117	138
Union	ī	30	21	1	84	63
Walworth		.==	.==	1	2	4
YanktonZiebach	3	162	179	5	244	237
Undistributed 1	r 32	W 7.938	W 10,411	1 36	42 8,279	$\frac{25}{11,352}$
Onaison ibuteu	- 02	1,700	10,411	อบ	0,418	11,002
Total 2	167	12,748	14,793	173	13,963	16,587

r Revised. W Withheld to avoid disclosing individual company confidential data; included with "Undistributed."

<sup>&</sup>lt;sup>2</sup> Rapid City Journal. \$20 Million State Cement Plant Expansion Approved. No. 29260, Feb. 1974, p. 8.

<sup>&</sup>lt;sup>1</sup> Includes Buffalo, Custer (1972), Day, Edmunds (1973), Gregory, Haakon (1972), Hyde, Lake, McCook, McPherson, Meade, Roberts, and Washabaugh Counties, and some sand and gravel that cannot be assigned to specific counties.

<sup>&</sup>lt;sup>2</sup> Data may not add to totals shown because of independent rounding.

Table 5.—South Dakota: Sand and gravel sold or used by producers, by class of operation and use

(Thousand short tons and thousand dollars)

		•		
Class of operation and use	19	72	19'	73
	Quantity	Value	Quantity	Value
Commercial operations: Sand:				
Building	604	765	878	1,182
Fill	96	45	302	295
Paving	382	399	266	351
Other uses 1	21	28	20	27
Total 2	1,104	1,238	1,467	1,855
Gravel:				
Building	340	506	475	773
Fill	195	112	311	220
Paving	3,760	3.994	3.590	3.963
Miscellaneous	334	399	18	
Other uses 8	39	175	400	19 470
Total 2	4,668	5,186	4.795	5.445
overnment and-contractor operations: Sand:				
Fill				_
Paving	104		1	. 1
Other uses	104	124	275	315
	35	25		
Total <sup>2</sup>	139	148	276	316
Gravel:				<del></del>
Building	26	**		
Fill		18	288	207
Fill Paying	18	5	112	-56
Other was	6,675	8,080	6,773	8,543
Other uses	118	118	254	166
Total 2	6,837	8,221	7,426	8,971
Total sand and gravel 2	12,748	14,793	13,963	16,587

Includes railroad ballast and "Other uses."

<sup>2</sup> Data may not add to totals shown because of independent rounding.

3 Includes railroad ballast (1972).

Stone.—Stone production was 3% higher in quantity and 7% higher in value than that in 1972. Increased prices for dimension stone, chiefly granite from the Milbank area mines in Grant County, northeastern South Dakota, were mainly responsible for rising values. Dimension stone also included some quartzite in 1973.

Crushed and broken stone comprised 98% of the total stone quantity but accounted for only 36% of the value. Of 2.7 million tons of crushed and broken stone mined, 38% went into concrete aggregate, and the balance went into roadstone, railroad ballast, and a variety of miscellaneous

Table 6.—South Dakota: Stone sold or used by producers, by kind (Thousand short tons and thousand dollars)

Kind of stone	19	72	19	73
	Quantity	Value	Quantity	Value
Dimension stone total 1 Crushed and broken:	37	7,017	40	7,474
LimestoneOther stone 2	1,685 944	1,945 1,905	1,661 1,043	1,843 2,290
Total 3	2,665	10,864	2,745	11,607

Data include granite, quartz (1972), and quartzite (1973). <sup>2</sup> Data include quartz (1972), and quartzite.

3 Data may not add to totals shown because of independent rounding.

Table 7.—South Dakota: Stone sold or used by producers, by use (Thousand short tons and thousand dollars, unless otherwise specified)

Use	19	72	19'	73
Use	Quantity	Value	Quantity	Value
Dimension stone:				
Rough construction and architectural work		w	w	w
Dressed architectural thousand cubic feet _ Rough monumental do		w	281	W
Dressed monumental do		4,290	128	W
Total (thousand short tons)	37	7,017	40	7,474
Crushed and broken stone:				
Bituminous aggregate	_ 339	584	236	472
Concrete aggregate	- 781	1.360	1.027	2.015
Macadam aggregate	_ 1	i	i	, ,
Surface treatment aggregate	_ 51	75	107	149
Cement manufacture	_ 600	391	(2)	( <sup>2</sup> ) 63
Riprap and jetty stone	_ 58	108	33	63
Other uses 2	_ 799	1,329	1,299	1,433
Total <sup>3</sup>	2,628	3,847	2,704	4,133
Grand total 3	2,665	10,864	2,745	11,607

W Withheld to avoid disclosing individual company confidential data; included in "Dimension stone

3 Data may not add to totals shown because of independent rounding.

#### METALS

Gold and Silver.—At Lead, S.D., the Homestake Mining Co. produced 357.575 ounces of gold and 71.939 ounces of silver from 1.57 million tons of ore milled. Outputs were down 12% for gold and 28% for silver from the 1972 amounts. Total values, however, rose 46% and 10% for gold and silver, respectively. The average grade recovered was 0.227 ounce per ton in gold content compared with 0.278 ounce per ton in 1972, an 18% drop in grade. The percentage of gold recovered from the ore compared with the content

determined by sampling rose to nearly 95% by yearend as a result of utilizing a new charcoal-in-pulp process for gold/cyanide extraction. The new unit began functioning in March 1973 and replaced a 65year-old slime treatment plant at Deadwood. A shortage of skilled miners continued to limit production from the Homestake mine. Effective April 1, the work week for miners was shortened to 40 hours as a result of stipulations in a labor contract signed in August 1972. Company efforts to increase the work week were rejected later in the year.

Table 8.—South Dakota: Mine production (recoverable) of gold and silver

	1971	1972	1973
Mines producing: Lode thousand short tons Material sold or treated: Gold ore thousand short tons Production (recoverable):	1,800	1,467	1 1,574
Quantity:       troy ounces         Gold       do         Silver       do	513,427 106,785	407,430 99,992	357,575 71,939
Value:     Gold thousands     Silver do	\$21,179 165	\$23,875 168	\$34,974 184
Total do	21,344	24,043	35,158

<sup>&</sup>lt;sup>1</sup> Data includes a minor amount of stone used in structural and sanitary purposes, (1972).

<sup>2</sup> Includes stone used for agricultural lime, lime manufacture, other filler, dense graded roadbase stone, railroad ballast, uses not specified, terrazzo, (1972). 1973 data also include stone used in unspecified construction aggregate and roadstone, and cement manufacture.

Table 9.—South Dakota: Homestake mine ore milled and receipts for gold produced

	Ore milled	Receipts for gold products		
Year	(thousand short tons)	Total (thousands)	Per ton	
1969	1,935	\$24.570	\$12.70	
1970	1,954	21,059	10.78	
1971	1,800	21,179	11,77	
1972	1,467	23,875	16.27	
1973	1,574	34,974	22.22	

Source: Homestake Mining Co. Annual Reports.

A contract was let late in 1973 to sink the No. 7 winze and deepen the No. 8 shaft from the 7200 level to the 8000 level. A major crosscut was driven on the 5300 level into new ground, and several stopes were prepared for extraction by blasthole methods, which dilute the ore but provide greater manshift tonnages. Ore reserves were estimated to total 9.05 million tons averaging 0.249 ounce of gold per ton at the end of 1973.

Uranium and Vanadium.—Susquehanna Western, Inc., curtailed uranium ore production at Edgemont owing to unsatisfactory uranium oxide prices. The firm maintained a small crew doing underground exploration. Mines Development Co. recovered vanadium from old tailings received from out-of-State, and the leach liquors from this operation then were sent through a recovery circuit for uranium. A small amount of yellow cake was recovered by this method during the year.

During 1973, Mobil Oil Co. was reportedly conducting extensive exploration activities for uranium in western Harding County and across the border in Carter County, Mont. Drilling depths indicated any ore bodies found would be developed and mined by underground methods.

#### MINERAL FUELS

Coal (Lignite).—Prospecting permits were issued by the State School and Public Lands Department for coal on lands located near Camp Cook in Harding County. Private lands were also leased for coal exploration in the same county. Approximately 21,000 acres of State lands were covered by permits at the end of 1973, including 14,700 acres in Harding County, 5,480 acres in Fall River County, and 837 acres in Custer County. Some of the lease areas were reportedly being ex-

plored for uranium in addition to coal. The State Environmental Protection Department required bonding and submission of a plan of operations and land reclamation before any coal mining could begin.

The pilot coal gasification plant, built by Consolidation Coal Co. and operated by Stearns Roger Corp. on the outskirts of Rapid City, successfully produced gas during 1973 in test runs, and subcontracts were awarded for construction of a \$1.7 million methanation unit to improve the product to pipeline-quality gas. The additional work was scheduled for completion in mid-1974.

Petroleum.—Crude oil production increased 26% in quantity and 72% in value in 1973. The State had 26 producing oil wells, most of them in the Buffalo field, northwest of Buffalo in Harding County. About 65% of total production was from the Buffalo field. One well, the Depco 42-27, in Yellow Hair field, supplied about 30% of total State production. Three wells in the Barker Dome field and one in the South Medicine Pole field produced the balance of the crude. Natural gas, used for repressuring, was produced at about 10 wells.

Exploration footage declined 37%, and of 21 holes drilled outside of proved fields, 4 were successful in finding oil. One hole in a proven field was also successful. Completion of a well by Depco, Inc., the 1-Ferkingstad well, resulted in the establishment of a new field named the State Line. The field embraced 12 sections, 3 of which were located in the eastern part of T 23 N, R 4 E, and 9, in the western part of T 23 N, R 5 E. About 4 miles south of the southern boundary of the new field, Hanover Planning Co., Inc., and Kenneth L. Luff completed a discovery well on the Travers Ranch. A permit was

issued to drill an oil test in the southern part of the State, 3 miles southeast of Provo.

An oil and gas lease sale on State lands

in August resulted in leasing of 33,000 acres in six western counties. The highest price was \$6.37 per acre for 80 acres in Harding County.

Table 10.—South Dakota: Oil and gas well drilling completions, by county

County -	Proved field wells 1		Exploratory wells		Total			
	Oil	Gas	Dry	Oil	Gas	Dry	Wells	Footage
Butte						2	2	5.044
Fall River						2	2	5,120
Haakon						1	ï	2,583
Harding	1			4		. 8	13	81,918
Hughes						ī	1	2,416
Lyman						ī	ī	1,921
Shannon						ī	ī	7900
Tripp						ī	î	2,247
Total	1			4		17	22	102,099

Development wells as defined by American Petroleum Institute. Source: American Petroleum Institute.

Table 11.—Principal producers

		=	
Commodity and company	Address	Type of activity	County
Cement: South Dakota Cement Com- mission. Clays:	Drawer 351 Rapid City, S. Dak. 57701	Wet-process, 3-ro- tary-kiln plant.	Pennington.
American Colloid Co	5100 Suffield Ct. Skokie, Ill. 60076	Open pit mine and plant.	Butte.
Light Aggregates, Inc	Box 1922 Rapid City, S. Dak. 57701	do	Pennington.
South Dakota Cement Commission	Drawer 351 Rapid City, S. Dak. 57701	Open pit mine	Do.
Feldspar: Pacer Corp	Box 311 Custer, S. Dak. 57730	Open pit mines and dry-grinding	Custer.
Gold: Homestake Mining Co	Lead, S. Dak. 57754	plant. Underground mine, cyanidation mill, and refinery.	Lawrence.
Gypsum: South Dakota Cement Com- mission.	Rapid City, S. Dak, 57701	Open pit mine	Meade.
Lime: Pete Lien & Sons	Box 3124, P.O. Annex Rapid City, S. Dak. 57703	I-rotary-kiln, I- vertical-kiln, continuous- hydrator plant.	Pennington.
Petroleum: The Ozark Corp	Box 2491 Casper, Wyo. 82601	Crude oil wells	ker Dome
Pennzoil United, Inc	900 Southwest Tower Houston, Tex. 77002	do	field). Harding (Buffalo field).
Phillips Petroleum Co	Frank Phillips Bldg. Bartlesville, Okla. 74003	do	Do.
Sand and gravel (commercial): Birdsall Sand and Gravel Co., Inc _	Box 767 Rapid City, S. Dak. 57701	Pit and plant	and Pen-
Concrete Materials Inc	3000 W. Madison St. Sioux Falls, S. Dak. 57104	Pits	and
H. W. Faber & Sons Construction Highway Construction Co	Sheldon, Iowa 51201 Box 511 Rapid City, S. Dak. 57701	2 plants	Roberts. Various. Pennington.
Mannerud Inc	612 13th Avenue Brookings, S. Dak. 57006	1 plant	Brookings.
N & M Construction Inc	Box 337 Sturgis, S. Dak. 57785	Pit	Meade.
Reynolds Construction Co	Box 689 Sioux Falls, S. Dak. 57101	Pit	Minnehaha.
Wellborg Brothers Inc	Dell Rapids, S. Dak. 57022	2 pits and mill $\_$	Hand.
Silver: Homestake Mining Co	Lead, S. Dak. 57754	See Gold	Lawrence.

Table 11.—Principal producers—Continued

Commodity and company	Address	Type of activity	County
Stone:			
Cold Spring Granite Co Concrete Materials Co	Cold Spring, Minn. 56320. 3000 West Madison Street Sioux Falls, S. Dak. 57104	2 quarries Quarry and plant	
Dakota Granite Co		2 quarries	Grant.
Hills Materials Co	Box 1392 Rapid City, S. Dak, 57701	Quarry and plant	Pennington
Lee Construction Co	Box 348 Spearfish, S. Dak, 57783	Quarry	Lawrence.
L. G. Everist, Inc		Quarry and plant	
Pete Lien & Sons	Box 3124, P.O. Annex Rapid City, S. Dak. 57703	do	
South Dakota Cement Commission	Drawer 351 Rapid City, S. Dak. 57701	do	Do.
Spencer Quarries, Inc Woidneck Construction Co	Spencer, S. Dak. 57374 710 Wilson St. Winner, S. Dak. 57580	Quarry	

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